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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,210	10/22/2001	Min-Goo Kim	678-762 (P9997)	4975

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EXAMINER

VLAHOS, SOPHIA

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/986,210	KIM ET AL.	
	Examiner	Art Unit	
	SOPHIA VLAHOS	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8, 9, 11, 12, 14, 15, 17 and 18 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 10, 13, 16 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/22/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see "Remarks", filed 2/23/2006, with respect to the rejection(s) of claim(s) 1-19 under 35 U.S.C. §103 (a) have been fully considered and are persuasive. Therefore, the rejection of claims 1, 5, 8, 11, 14, and 17 has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art references of Lundby et. al. (U.S. 6,690,734).

Priority

2. The applicant's arguments and evidence regarding foreign priority have been reviewed and are accepted.

Drawings

3. The drawings (Figures 24 & 25) are objected to under 37 CFR 1.83(a) because they fail to show how the controller determines a minimum data rate by which the number of modulation symbols of the sub-code generated by a predetermined modulation method is equal to or greater than the number of transmittable modulation symbols for the time period as described in the specification (pages 35-40). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should

include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 2, 6 are objected to because of the following informalities: Both claims recite the limitation: "... wherein symbol pruning is performed on second half of the modulation symbols of the sub-code." This should be corrected as (emphasis added) : "... wherein symbol pruning is performed on **the** second half of the modulation symbols of the sub-code."

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby et. al., (U.S. 6,690,734) in view of Chouly et. al., (U.S. 6,052,821).

With respect to claim 1, Lundby et al., disclose: determining the number of the symbols that is equal to or greater than the number of transmittable symbols for the time period (column 1, lines 55-65, column 8, lines 22-33); and pruning part of the symbols of the sub-code so that the number of the symbols of the sub-code is equal to the number of transmittable symbols for the time period, if the number of the symbols of the sub-code is greater than the number of transmittable symbols for the time period (see column 8, lines 22-33 again).

Lundby et. al., do not expressly teach: modulation symbols, and determining a minimum data rate by which the number of the modulation symbols of the sub-code generated by a predetermined modulation method is equal to or greater than a number of transmittable modulation symbols for the time period; However, in the same field of endeavor, Chouly et. al., discloses: modulation symbols (see Fig. 2, output of element 15, "MAPP", column 2, lines 14-36). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the symbol pruning process of Lundby to modulation (modulated) symbols so that both frame capacity (equally obvious to apply the pruning prior to modulation as taught by Lundby et. al.) and performance (Chouly et. al., column 3, lines 50-52) are addressed. Although, Lundy et. al., does not disclose determining a minimum data rate by which the number of the modulation

symbols of the sub-code generated by a predetermined modulation method is equal to or greater than a number if transmittable modulation symbols for the time period, it would have been obvious to a person of ordinary skill in the art that the minimum data rate is known (determined) when the number of symbols to be pruned in the frame is calculated.

With respect to claim 2, all of the limitations of claim 2 are analyzed above in claim 2, and wherein symbol pruning is performed on second half of the modulation symbols of the sub-code (Lundby et. al., column 8, lines 34-50).

7. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby et. al., (U.S. 6,690,734) in view of Chouly et. al., (U.S. 6,052,821) as applied to claim 1, and in view of Eroz et. al., (6,665,829).

With respect to claim 3, all of the limitations of claim 3 are analyzed above in claim 1, except for: the modulation symbols of the sub-code are channel interleaved symbols. In the same field of endeavor, Eroz discloses a channel interleaver (Fig. 1, element 112, channel interleaver, column 5, lines 25-27). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the channel interleaver of Eroz in the system of Lundby et. al., since (channel) interleavers are known in the art to protect against error by pseudo-randomizing the (data) symbol sequence.

Method claims 5-6, 8-9 and apparatus claims 11-12, 14-15, 17-18 are analyzed similarly to apparatus claims 3 and 2 respectively.

Allowable Subject Matter

8 Claims 4, 7, 10, 13, 16, 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

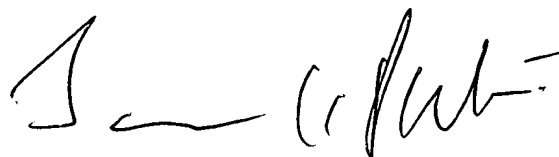
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is 571 272 5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SV
5/15/06

A handwritten signature in black ink, appearing to read "Jay K. Patel", is written over a horizontal line.

JAY K. PATEL
SUPERVISORY PATENT EXAMINER